EFFICACY REVIEW

PRODUCT:	TC 267
REG. NUMBER:	499-531
DATE:	10-10-08
DP BARCODE:	D357178
DECISION NUMBER:	399092
GLP:	No
CHEMICAL:	Dinotefuran (0.5%)
CHEMICAL NUMBER:	044312
PURPOSE:	Review submitted data to determine if they support the addition of cockroaches, brown recluse spiders and carpenter ants to the label.
MRID:	*47262601. Northern, M. (2006) Field Evaluation of the Efficacy of Two Whitmire Micro-Gen Aerosol Formulations Against German Cockroaches (Blattella germanica). Project Number: 06/WMGA1. Unpublished study prepared by Granovsky Associates, Inc. 17 p.* *47518702. Snell, E. (2008) Evaluation of Whitmire TC 267 When Applied as Direct Spray onto Brown Recluse Spiders (Loxosceles recluse). Project Number: WHTTO267BRDIRECT08. Unpublished study prepared by Snell Scientifics, LLC. 20p.* *47518703. Sims, S. (2008) The Effects of a Direct Contact Spray from a Dinotefuran Aerosol Formulation on Workers of the Black Carpenter Ant, Camponotus pennsylvanicus (DeGeer) and the Field Ant, Formica subsericea Say (Hymenoptera: Formicidae). Project Number: 1221. Unpublished study prepared by Whitmire Micro-Gen Research Laboratories, Inc. 7p.*
TEAM REVIEWER:	Rita Kumar
EFFICACY REVIEWER:	Kable Bo Davis, M.S., Entomologist
SECONDARY EFFICACY REVIEWER:	Joanne Edwards, M.S., Entomologist

10-10-08

Joanne D Edward
10/10/08

BACKGROUND:

TC 267 is a ready-to-use aerosol pesticide intended for the indoor and outdoor kill of numerous pests. Agency reviews dated 6/19/07 (D340434) and 10/24/07 (D345875) required the removal of all references to cockroaches, carpenter ants and brown recluse spiders from the label. The MRID numbers referenced above (47262601, 47518702 and 47518703) have been submitted to support the addition of these public health/structural pests.

DATA REVIEW:

The following data review is comprised of explanations of materials and methods, and a summation of experimental results containing tables with reformatted data.

47262601. Northern, M. (2006) Field Evaluation of the Efficacy of Two Whitmire Micro-Gen Aerosol Formulations Against German Cockroaches (Blattella germanica). Project Number: 06/WMGA1. Unpublished study prepared by Granovsky Associates, Inc. 17 p.

The objective of study was to evaluate the efficacy of three different aerosol formulations (Table 1) against German cockroaches infesting homes. The experimental design consisted of an initial infestation assessment to determine pest pressure. To be included in the study, a minimum of 25 cockroaches had to seen within the harborage sites of the kitchen. One can of product for each formulation was applied as a crack and crevice treatment to each kitchen. Post-treatment counts were taken on days 7, 14, 21 and 28.

Table 1. Formulations[1] Tested

	A.I.	# Homes
Treatment A	Dinotefuran (0.5%)	6
Treatment B	Chlorfenapyr (0.5%)	6
Treatment C	Deltamethrin (0.06%)	6

[1] *aerosols*

Results-

Table 2. Percent Population Reduction[1]; Field Study

		Percent Reduction			
	Pre-Count	7-DAT	14-DAT	21-DAT	28-DAT
Treatment A	1288	90%	90%	85%	87%
Treatment B	1179	85%	83%	88%	87%
Treatment C	1806	67%	58%	64%	59%

[1] *1-(Post/Pre) = population reduction*

The percent reduction of German cockroaches infesting homes treated with TC 267 (0.5% dinotefuran) ranged from 85% (21-DAT) to 90% (7 and 14-DAT). Please

note that all future cockroach field data must include degree of sanitation for each treatment site.

47518702. Snell, E. (2008) Evaluation of Whitmire TC 267 When Applied as Direct Spray onto Brown Recluse Spiders (Loxosceles recluse). Project Number: WHTTO267BRDIRECT08. Unpublished study prepared by Snell Scientifics, LLC. 20 p.

The objective of this study was to determine the efficacy of TC 267 when applied as a direct spray to brown recluse spiders (*Loxosceles recluse*). The experimental design consisted of placing five spiders (5 replications of 5) into screened "direct spray cartridges". Each cartridge was treated with a 1 second spray of product (~3.6 ml per spray). Control spiders were treated with water. Observations on mortality were taken at 30-min, 1-hr, 2-hr, 4-hr, 6-hr and 24-hr.

Table 3. Percent Mortality of Brown Recluse Spiders Treated with TC 267

	Percent Mortality					
	30-min	1-hr	2-hr	4-hr	6-hr	24-hr
TC 267	72%	92%	100%	100%	100%	100%
Control	0%	0%	0%	0%	4%	4%

The percent mortality of brown recluse spiders treated with a one second spray of TC 267 ranged from 72% (3 min) to 100% (2-24 hr). The percent control mortality remained at acceptable levels throughout the duration of the study.

47518703. Sims, S. (2008) The Effects of a Direct Contact Spray from a Dinotefuran Aerosol Formulation on Workers of the Black Carpenter Ant, Camponotus pennsylvanicus (DeGeer) and the Field Ant, Formica subsericea Say (Hymenoptera: Formicidae). Project Number: 1221. Unpublished study prepared by Whitmire Micro-Gen Research Laboratories, Inc. 7 p.

The objective of this study was to determine the efficacy of TC 267 when applied as a direct spray to carpenter ants (*Camponotus pennsylvanicus*). The experimental design consisted of introducing ants to arenas lined with filter paper. Each container was treated with a one second spray of TC-267. Following application, all ants were relocated to clean arenas. Control groups consisted of placing ants into experimental arenas and not spraying them with product. Observations on mortality (LT^{50}) were recorded.

Table 4. Percent Carpenter Ant Mortality

	# of Ants	LT^{50}
Group 1	39	66 min
Group 2	65	49 min

The LT^{50} for carpenter ants exposed to TC 267 ranged from 66 min. (Group 1) to 49 min. (Group 2). This study is deemed unacceptable to support the addition of carpenter ants to the label. The study contained the following deficiencies:

1. The study does not provide data showing 90% or better mortality.
2. The percent control mortality was not provided.
3. The study was comprised of only two carpenter ant replications.
4. No raw data were provided.

RECOMMENDATIONS:

The submitted data support the addition of German cockroach and brown recluse spider "kill" claims. The following recommendations apply:

1. The data do not support the addition of claims for the kill of foraging carpenter ants. To have this pest added back on in the future, additional data must be submitted showing 90% or better mortality.

    a. Revise the claim "*Ants (including foraging Carpenter, Fire, Harvester and Pharaoh Ants)*" to read "*Ants (including foraging Fire, Harvester and Pharaoh Ants)*".

    b. Delete the section "**Localized Treatment of Foraging Carpenter Ants**".

    c. Delete the section "**Foraging Carpenter Ants Living Inside Trees**".

    d. Delete the section "**Foraging Carpenter Ants in Stumps, Utility Poles and Fences**".

2. Within the **TREATMENT OF THE STRUCTURE FROM THE OUTSIDE** section of the **OUTDOOR TREATMENTS** portion of the label, revise the sentence "*Treat where these insects may be harboring, traveling....*" in such a way as to explain exactly which pests it is referring to. What is meant by "*...these insects...*"?